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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,577

04/18/2005

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123531

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27049 7590 07/08/2010
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EXAMINER

JOLLEY, KIRSTEN

ART UNIT

PAPER NUMBER

1715

NOTIFICATION DATE

DELIVERY MODE

07/08/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/531,577	Applicant(s) NORO ET AL.	
	Examiner Kirsten C. Jolley	Art Unit 1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20,21,23-25,27,28 and 32-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20,21,23-25,27,28 and 32-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed March 31, 2010 have been fully considered. Applicant argues that, when the thickness of the elastic body is between 1 and 5 mm and the width of the elastic body is between 1 and 10 mm, the total area of the partial uncoating portion and the peeling portion is low and that this range is critical and yields unexpected results, as shown in Table 1. The results shown in Table 1 of the specification are convincing to the Examiner. However, the unexpected results illustrated in Figure 1 are not commensurate in scope with independent claim 20, and therefore claim 20 remains rejected over Fukuta et al. in view of Gane. Figure 1 demonstrates that the hardness of the flexible blade is also a critical factor in the unexpected results of the external appearance. This is shown by Examples 12-14 which vary the hardness and demonstrate undesirable results when the hardness is outside of the claimed range. The Examiner notes that if dependent claim 32, which is directed to a range of hardness of the elastic body, is incorporated into claim 20, then claim 20 would be allowable over the prior art. Accordingly, this action has been made non-final.

Applicant also argues that the viscosity in Gane's invention is quite low in comparison to the present application, and that if one uses a coating composition having a viscosity around 2.5 Pas in the present application, the coating composition would drop down since the elastic body is set in a vertical direction on the fired surface of pillar structure in the present application and not in the horizontal direction as Gane. The Examiner notes that Gane is not cited for its viscosity or to incorporate the solution of Gane into Fukuta et al.'s apparatus. Gane is merely cited for its

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teaching that it is known to add an elastic body to a steel blade to smooth and level an applied coating.

Applicant argues that Fukuta does not take into consideration the risk of peeling when having a thin coating, or particularly when the columnar body slants and comes into contact with the nozzle. The Examiner notes that Fukuta does not discuss slanting of the columnar body and thus one would not expect such a problem with its invention.

Applicant finally argues, with respect to claim 32, that the hardness of the elastic body is a critical factor, and the applied references do not realize the criticality of the recited range of the hardness, much less the criticality of the combined effects of hardness with the ranges of width and thickness. The Examiner acknowledges that the hardness is shown to be a critical factor, when taken in combination with the thickness and width of the elastic body, and therefore claim 32 is now indicated as allowable as set forth below. However it is noted that claim 32 is now also rejected under 35 USC 112, 2nd paragraph because there are no units in the claim.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 32 is vague and indefinite because it states “wherein the sheet-like elastic body has a hardness of 30-80,” however there are no units in the claim, therefore it is not known on what

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scale the hardness is measured, and the metes and bounds of the claim are unknown. The Examiner suggests adding --measured in accordance with JIS K6253-- (or other similar language, taken from page 21, lines 21-24 of the specification) to specify the scale on which the hardness is measured.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20-21, 23-25, 27-28, and 33-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuta et al. (US 5,749,970) in view of Gane (US 4,728,539).

Fukuta et al. discloses an apparatus for coating the outer peripheral surface of a pillar structure comprising: a holder which holds the pillar structure in nearly vertical direction and rotates together with the held pillar structure on an axis of nearly vertical direction as a common rotating axis, wherein the holder holds the pillar structure placed thereon with one end thereof facing downward and has a pedestal rotating together with the held pillar structure on the axis of the substantially vertical direction as the common rotating axis (col. 8, lines 14-19); a supplying and coating mechanism which supplies a coating material to the outer peripheral surface of the rotating pillar structure and coats the coating material on the outer peripheral surface; a doctor blade smoothing means the one longer side end portion of which is disposed at a given position with respect to the outer peripheral surface and which smoothes the coating surface of the

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coating material supplied to and coated on the outer peripheral surface; and a following mechanism comprising first and second following rollers 36, 37 which drives the smoother following the outer periphery of the pedestal/pallet so that the smoother is disposed at a given position with respect to the outer peripheral surface of the pillar structure (col. 4, line 57 to col. 5, line 18); whereby the coating material is supplied to and coated on the outer peripheral surface through the doctor blade, the coating material is delivered by a nozzle from the supplying and coating mechanism to the outer peripheral surface of the pillar structure, and the coating surface is smoothed between the outer peripheral surface and the doctor blade.

Fukuta et al. lacks a teaching of a smoother having a smoothing plate and a sheet-like elastic body provided at the longer side end portion of the smoothing plate on the side of the pillar structure. The prior art of Gane is cited for its teaching of a coating apparatus comprising a flexible/elastic blade secured to a retaining means. Gane teaches that the flexible blade of its invention achieves improved coating such as a much smoother flow of coating composition under the blade as compared to a prior art steel doctor blade, resulting in a smooth, level coating (col. 3, line 52 to col. 4, line 14, and col. 2, lines 7-45). It would have been obvious to one having ordinary skill in the art, having seen the improved results achieved by Gane, to have substituted a flexible/elastic doctor blade in the apparatus of Fukuta et al. with the expectation of achieving smoother flow of coating material under the blade and a resulting smooth, level coating.

With respect to claim 21, the doctor blade of Fukuta et al. is disposed so that its longer direction coincides with the central axis direction of the pillar structure, therefore the modified elastic blade would be disposed in the same position. The elastic blade would contact the outer

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peripheral surface of the pillar structure, as similarly illustrated in Gane, between both end faces of the pillar structure.

As to claim 23, Fukuta et al. teaches that the holder has a cam which is disposed on the side of another end of the pillar structure placed and held on the pedestal and rotates on the axis of the vertical direction as the common rotating axis (col. 7, lines 24-36). As to claim 24, the outer peripheral shape of the pedestal and that of the cam are nearly the same. As to claim 25, a centering means holds the pillar structure and the pedestal and/or the cam in a given positional relation.

As to claim 27, the following mechanism has first and second following rollers 36, 37 which are disposed at a given distance from each other and move backward and forward following the outer periphery of the cam while contacting with the outer periphery of the cam together with the supplying and coating mechanism and the smoother, and the first and second following rollers are disposed so that the angle formed by a straight line passing through the centers of the respective rollers and a tip portion of the smoother is a given angle (see Figure 4).

As to claim 28, Fukuta et al. teaches third and fourth following rollers where the rotating axis of the third following roller and that of the first following roller are common and the rotating axis of the fourth following roller and that of the second following roller are common in col. 5, lines 19-28.

As to claim 33, Gane teaches that the elastic blade may comprise rubber (col. 3, lines 18-19).

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As to claim 34, Fukuta et al. teaches that the outer periphery of the pedestal and/or the cam comprise stainless steel or ceramics (col. 5, lines 34-40).

As to claim 35, Fukuta et al. discloses that its original doctor blade should be made of stainless steel or ceramics to provide durability (col. 5, lines 29-31). For this reason, it would have been obvious for the retaining means of the flexible blade in the apparatus of Fukuta et al. in view of Gane to similarly be made of stainless steel or ceramics -- to provide durability.

As to claim 36, the shape of a section of the pillar structure cut along a plane perpendicular to the central axis of the pillar structure is circular or elliptical (see Figures).

As to claim 37, Fukuta et al. teaches that its pillar structure is a honeycomb structure comprising a plurality of cells which are flow paths for fluid.

As to claim 38, Fukuta et al. lacks a disclosure of supplying and coating mechanism and smoother which can rotate together along the outer periphery of the pillar structure. However it is the Examiner's position that it would have been obvious for an engineer having ordinary skill in the art to have reversed the means for relative movement (i.e., the pillar structure is stationary while the coating and smoothing mechanism rotate around the pillar structure) with the expectation of equivalent and similar results since relative movement between the substrate and coating and smoothing mechanism is what is required.

As to claim 39, Fukuta et al. also discloses a method of using the apparatus discussed above with respect to claim 20 comprising: holding the pillar structure by the holder; supplying the coating material from the supplying and coating mechanism on the outer peripheral surface of the pillar structure and coating the coating material thereon while rotating the pillar structure

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and the holder on the axis of vertical direction as a common rotating axis; and smoothing the coating surface of the supplied and coated coating material between the outer peripheral surface and the sheet-like elastic body.

As to claim 40, Fukuta et al. illustrates in Figure 4 and 5a-b that first and second following rollers 36, 37 are positioned on substantially the same horizontal plane against the outer peripheral surface.

Allowable Subject Matter

6. Claim 32 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims, for the reasons discussed above in section 1.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kirsten C Jolley/
Primary Examiner, Art Unit 1715

kcj